IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Art Unit	: 1793	**Customer No. 035811**
Examiner	: Caitlin Anne Fogarty	
Serial No.	: 10/583,220	Docket: JFE-06-1129
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Inventors	: Atsushi Miyazaki	Conf. No.: 7655
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Title	: FERRITIC Cr-CONTAINED STEEL	
		Dated: May 13, 2009

RESPONSE

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Sir:

This is submitted in response to the Advisory Action dated March 31, 2009.

This response is submitted together with a Request for Continued Examination and assumes entry of the Applicants' prior response dated March 18, 2009.

Claims 13-17, 20 and 21 stand rejected under 35 USC §103 as being obvious over Kawabata. That rejection relies primarily on inherency of the Applicants' claimed amount of precipitated W being about 0.1 mass % or less or that the average thermal expansion coefficient between 20°C-800°C is less than about 12.6×10^{-6}/°C because of overlap with the composition of the steel and because the Kawabata steels are made "using a method similar to the method of the instant invention." The Applicants will address the inherency issue directly below. However, prior to addressing that issue, the Applicants will provide an additional set of comments directed to the underlying obviousness rejection.

According to Kawabata, W is not an indispensable element, contrary to the Applicants' Claim 13. Instead W is an optionally added element in Kawabata and as for the examples of Kawabata, out of 101 examples, there is only one example (No. 86 in Table 4) containing W. It

has a value of W: 1.5% which is <u>outside</u> the range of W (2.0 to 6.0%) recited in the Applicants' Claim 13.

This is because Kawabata is directed to completely different subject matter. Kawabata is related, as disclosed in column 1 at lines 50 to 57, to a process for manufacturing stainless steel sheets to be used as building materials, materials for automobiles, materials for chemical plants and the like, in particular, stainless steel sheets having a more excellent corrosion resistance. This is compared to conventional steels without trimming the steel sheet surface after annealing-pickling in the production of stainless steel sheets, particularly stainless steel sheets having extremely low amounts of C, S and O.

On the other hand, the Applicants' steel sheets as recited in Claim 13, as set out in the Applicants' Specification on page 1, paragraph [0001]:

> The present invention relates to ferritic Cr-contained steel having a low thermal expansion coefficient, and particularly relates to ferritic Cr-contained steel having a low thermal expansion coefficient suitable for applications in which a heat cycle is repeated between high temperature and low temperature, including exhaust system members of an automobile such as exhaust manifolds, exhaust pipers, converter case materials, and metal honeycomb materials; separators within a solid-oxide-type fuel cell; materials for interconnectors; materials for reformers as peripheral members of fuel cells; exhaust ducts of power generation plants; or heat exchangers.

Also, the Applicants' Specification on page 13, paragraph [0038], recites a feature of Claim 13 in that, to secure the effect of thermal expansion coefficient, there is specified hot-rolled-sheet annealing at a hot-rolled-sheet annealing temperature of 950°C to 1150°C (more preferably, 1020°C to 1200°C), so that precipitated W is 0.1% or less in percent by mass. Critically, Kawabata discloses annealing based on an ordinary method only and there is no disclosure of any concrete description of annealing temperature.

Moreover, in Kawabata the relationship between the amount of precipitated W and thermal expansion coefficient, which is an inventive aspect of Claim 13, is not disclosed at all. Evidence is found in Kawabata in column 9, lines 15 to 24 wherein W is optional and of all examples in Kawabata, there is only one example, namely No. 86 (W: 1.5%) in Table 4, and that value is <u>outside</u> the Applicants' range of W content (2.0 to 6.0%). The Applicants therefore respectfully submit that the solicited claims are not obvious on this basis below.

Referring now to the issue of inherency, the Applicants note with appreciation the Examiner's helpful comments concerning that portion of the rejection. The Applicants are, of course, well aware of MPEP 2144 IV and MPEP 2112. The Applicants respectfully submit that those sections of the MPEP actually stand in support of the Applicants' position of noninherency. The rejection apparently erroneously relies on the notion of a "similar" method and a "similar" average thermal expansion coefficient that would be expected. However, careful scrutiny of the relevant MPEP sections reveals that "similarities" are not enough to sustain a rejection based on inherency. The requirement for inherency is a high hurdle indeed to be established. Thus, the claimed aspects at issue that are allegedly inherent must be shown to be "necessarily" present. It is not enough that a claimed characteristic might be present, could be present or even very likely might be present. That does not meet the requirement. What is required is that the claimed characteristic "must" be "necessarily" present. In this case, that means that the amount of precipitated W and the average thermal expansion of coefficient must "necessarily" be present in Kawabata.

The rejection is based on the premise of a "similar" method. Those skilled in this art well know that there are a number of similarities in making cold rolled steel sheets. However, those skilled in this art are also well aware that there are and can be differences which are on their face

quite large and have a serious impact and there are other differences that are less apparent yet can still have a serious impact on the characteristics of the resulting steel sheets. In this case there are a number of differences.

For example, the Applicants' methodology includes cold rolling followed by finish annealing such as disclosed on page 13 in paragraph [0038] in the Applicants' Substitute Specification. That text reveals that the steel sheets were cold rolled and then subjected to annealing at 900°C-1200°C for three minutes and then air cooled, and pickled. This is sharply contrasted to Kawabata which discloses something that is quite different. Kawabata does disclose cold rolling and does disclose annealing. To that extent, there are "similarities." However, there are also significant and important <u>differences</u>. For example, Kawabata teaches in columns 13 and 14, that the Kawabata cold sheets are subjected at a temperature of 1150°C for ten seconds and then cooled. This is a significant difference from what the Applicants do. In that regard, the Applicants' annealing is for three minutes, while the Kawabata annealing is ten seconds. Those skilled in this art would readily know that there are significant differences between annealing for ten seconds and three minutes which can impact any number of characteristics of the steels.

However, there is still an additional difference in Kawabata. This can be found in the text spanning columns 14 and 15. In that regard, Kawabata teaches that the cold rolled steel sheets that have just been annealed at 1150°C for ten seconds and then cooled is subjected to a pickling process, followed by yet <u>another</u> annealing process. That annealing process is disclosed in lines 7-9 of column 15 wherein the cold rolled steel sheets "are subjected to a bright annealing by heating at 900°C in an ammonia decomposed gas for 10 seconds." In other words, Kawabata

provides a second annealing at a different temperature in a different gas atmosphere for another ten seconds. The Applicants do not do this.

The Applicants therefore respectfully submit that their process discloses cold rolling followed by a particular type of annealing whereas Kawabata discloses cold rolling followed by two separate and distinct types of annealing with an intervening pickling step between the two annealing steps.

What does this mean? First, it means that the Applicants' methodology is, in fact, quite different from the methodology of Kawabata. Thus, the Applicants respectfully submit that the steels are not made by "similar" methods other than just the superficial fact that both steels are cold rolled and both steels are annealed. What those skilled in the art fully understand is that the number of times that the cold rolled steel sheets are annealed, their temperatures, the time of annealing and the surrounding atmosphere can and does have a serious impact on the final characteristics of the steel. In this case, Kawabata provides a different type of annealing and then provides a second annealing subsequent to the first annealing. This is sharply different from the Applicants' claimed methodology and those skilled in the art would reasonably expect that the final characteristics of the steels between the Applicants and Kawabata would likely, inherently be different, not inherently the same.

This would apply to the Applicants' claimed precipitated amount of W. Those skilled in the art would understand that different types and amounts of annealing could impact potential precipitation of any number of elements. This could reasonably be expected to have an impact on the claimed coefficient of thermal expansion as well. Therefore, the Applicants respectfully submit that they have factually established that Kawabata does not meet the high standard of inherency of the Applicants' claimed precipitation of W and establishing coefficient of thermal